DOCUMENT RESUME

ED 304 180 JC 890 100

AUTHOR Williams, Jean
TITLE Nursing Program Associate in Applied Science Degree, Patrick Henry Community College. Evaluation Report.
INSTITUTION Patrick Henry Community Coll., Martinsville, VA.
PUB DATE Jan 89
NOTE 39p.
PUB TYPE Reports - Evaluative/Feasibility (142) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Academic Achievement; College Curriculum; *College Graduates; Community Colleges; *Employer Attitudes; Grading; *Licensing Examinations (Professions); *Nursing Education; Program Evaluation; Program Improvement; *Scores; Student Characteristics; Two Year Colleges; Two Year College Students

ABSTRACT

In 1988, a quantitative and qualitative analysis was conducted to determine the effectiveness, quality, and image of Patrick Henry Community College's (PHCC's) nursing program. The study was initiated in response to faculty and administrator concern about the low passing rates of nursing graduates on the state licensing board examination. The nursing program was evaluated in terms of the percentage of first-time candidates passing the nursing licensure exam; the academic and personal characteristics associated with success or failure on the exam; and a 1987 survey of area doctors, dentists, hospitals, and nursing homes to determine their satisfaction with PHCC graduates. Study findings included the following: (1) the passing rate for the licensure exam ranged from a low of 65% in 1985 to a high of 81% in 1987; (2) compared to other Virginia community colleges, PHCC ranked well below average on the pass rate of first-time examinees; (3) exam passing trends indicated that classroom grading scales were not in line with standardized tests; (4) students who repeated a nursing course were more likely to fail the licensure exam than those who did not; (5) 100% of the students who had previous practical nursing experience passed the exam on their first attempt; and (6) employers of PHCC's nursing graduates were more satisfied with graduates' attitudes about their work than with the graduates' specific skills. Among recommended changes were: (1) raise curriculum standards; (2) re-examine policy on re-admission of academic failures; (3) establish tutoring programs for at-risk students; and (4) tighten admission requirements. It was pointed out that 1988 graduates, not included in this study, achieved a 92% pass rate for first-time examinees. Appendixes provide the questionnaire for the employer survey, detailed results, and a report submitted to the Nursing Consultant to Virginia's Department of Health Regulatory Boards regarding the reasons for the failure of PHCC students on the licensure exam. (AJL)

ED304180

Evaluation Report

for

Nursing Program
Associate in Applied Science Degree
Patrick Henry Community College

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

J. Williams

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Prepared by:

Jean M. Williams
Coordinator of Institutional Research, Planning and Evaluation
Patrick Henry Community College

January, 1989

BEST COPY AVAILABLE

JC 890 100

CONTENTS

List of Tables and Figures i

Introduction 1

Quantitative Information 2

Qualitative Information 13

Conclusions and Recommendations 15

Appendices 17

Appendix A: Survey of Service area Doctors, Hospitals and Health Services Personnel 18

Appendix B: Results of Survey of Service Area Doctors, Hospitals and Health Services Personnel 23

Appendix C: Letter to Nancy K. Durrett, Nursing Consultant, Department of Health Regulatory Boards. Commonwealth of Virginia 29

TABLES AND FIGURES

Table 1. NCLEX-RN Passage Rate for First-Time Candidates 2

Figure 1. Passage Rate for First-Time Candidates on NCLEX-RN 3

Table 2. Distribution of Grades for Prerequisite Courses 4

Table 3. Comparison of Scores of Students on Nursing Program Courses, CGP, GPA and Age on First NCLEX-RN Attempt 6

Figure 2. Average Age of Students Who Took NCLEX-RN Exam Between 1984 and 1987 7

Figure 3. CGP Reading Scores 8

Figure 4. CGP Math Scores 9

Table 4. 2 X 2 Contingency Table of NCLEX-RN and Repeat of Nursing Course 10

Table 5. 2 X 2 Contingency Table of LPN and NCLEX-RN 10

Table 6. Correlation Coefficients 11

Table 7. Employer Ratings of PHCC Nursing Graduates 13

INTRODUCTION

The nursing program, offering an Applied Science Degree in Health Technologies was one of the original occupational-technical programs recommended for Patrick Henry Community College. Established in 1972, this program was one of the first occupational/technical programs established at the college and continues to be the largest of the O/T programs. The nursing program has always been approved by the Virginia State Board of Nursing. It is a member of FITNE and the National League for Nursing, voluntary professional associations.

PHCC's nursing program has grown from its inception in 1972. During its earliest years the program admitted approximately 20 students yearly, and graduated about 15 students each year. The present entering class consists of 47 students and approximately 27 students will graduate in 1989.

During the sixteen years of the program's existence, the composition of the nursing student population has changed. For the first few years of the program's existence, students came primarily from the top 25th percentile of their graduating class in high school. By the mid-1980's the average nursing student came from the second 25 percent of their high school graduating classes and were less academically prepared. This change in population indicated a need to change the nursing curriculum and teaching methods to accommodate the changing student population.

The nursing program has always enjoyed good relationships with local health care agencies which provide practical hands-on experience for students. Eight facilities, seven hospitals and one nursing home, throughout the cities of Danville, Martinsville, Roanoke and Salem and the counties of Henry, Patrick and Franklin are currently involved in PHCC's nursing program. Most program graduates seek and retain employment in the local area. The program thus helps meet one of the primary college goals, Occupational-Technical Education which prepares students for employment.

This report will demonstrate that the college, through this program, is serving a vital function in preparation of employees for the health care agencies within our service area and will demonstrate the high quality and respectability of program graduates. Areas in which further improvement is needed will also be identified and possible remedies included. The report should present a comprehensive analysis of the program that will be useful in many ways.

Quantitative Information

PHCC faculty and administrators have been concerned with the passing rate of nursing graduates who take the licensure exam for the first time each summer. As shown in Table 1, this passing rate has ranged from a low of 65% in 1985 to a high of 81% in 1987. Before 1985, PHCC's passing rate was almost always above 90%. Compared to other colleges in the state community college system, PHCC ranks well below average on passage rate of first time examinees. This is graphically illustrated in Figure 1 where it may be seen that while this program has made significant gains over the last three years, the percentage of students passing on first try is still well below state average.

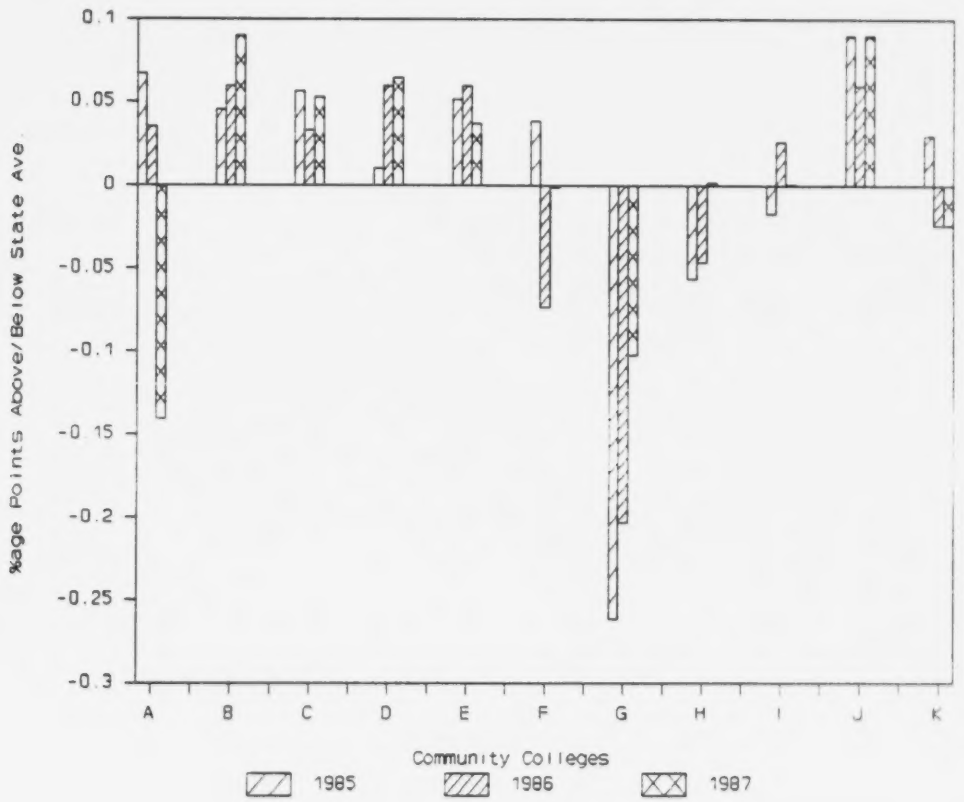
Table 1. NCLEX-RN Passage Rate for First-Time Candidates

	1985			1986			1987		
COLLEGE	# CAND.	# PASS	% PASS	# CAND.	# PASS	% PASS	# CAND.	# PASS	% PASS
Piedmont	44	43	98%	41	40	98%	39	30	77%
J Sargeant Reynolds	45	43	96%	45	45	100%	41	41	100%
Virginia Western	30	29	97%	37	36	97%	27	26	96%
Germanna	25	23	92%	39	39	100%	40	39	98%
Dabney S. Lancaster	26	25	96%	23	23	100%	19	18	95%
Tidewater	39	37	95%	45	39	87%	44	40	91%
Patrick Henry	37	24	65%	19	14	74%	26	21	81%
Thomas Nelson	41	35	85%	47	42	89%	34	31	91%
Wytheville	56	50	89%	59	57	97%	56	51	91%
John Tyler	17	17	100%	34	34	100%	26	26	100%
Northern Virginia	117	110	94%	107	98	92%	105	93	89%
TOTAL	477	436	91%	496	467	94%	457	416	91%

Nursing department faculty have examined possible causes of declines in first-time passage rates and have determined that there is not a single reason but rather a number of reasons for such a decline. Foremost among these reasons is the fact that the pool of applicants decreased substantially. Entry requirements had to be adjusted lower in order to obtain enough qualified applicants for a class of students. Since entry requirements were lowered to allow more students to enroll in the program, the quality of students who graduated from the program and took the licensure exam were not of the calibre of previous students, even though they had completed similar programs.

A second reason for lower pass rates is the fact that the summer quarter was eliminated. The nursing program previously was seven quarters long, with students attending classes during the summer between the two academic years in which they were enrolled. Faculty report that one result of this change is that students forget some of the information covered during the previous year and must go through extensive reviews

Figure 1. Passage Rate of First-Time Candidates on NCLEX-RN



Legend:

A - Piedmont	E - Dabney S. Lancaster	I - Wytheville
B - J. Sargent Reynolds	F - Tidewater	J - John Tyler
C - Virginia Western	G - Patrick Henry	K - Northern Virginia
D - Germanna	H - Thomas Nelson	

at the beginning of the second fall term in order to be prepared for the second year's work. A second effect of the elimination of the summer term has been that material which was previously taught over the course of seven -quarters must now be taught during six (four semesters beginning fall, 1988). Obviously, this necessitates spending less time on important topics and the depth of coverage is not as great as before.

Nursing faculty members and the Coordinator of Institutional Research, Planning and Evaluation attempted to determine whether there were other factors which contributed to low state board pass rates by examining such variables as scores on practice tests, GPA's, age, previous medical experiences and repeating nursing courses.

The first variables examined were scores on nursing courses and prerequisites to the nursing program. It seems that there is a significant amount of grade inflation, a growing problem nationally, not only in nursing courses but in prerequisites for those courses as well. As Table 2 indicates, for every course listed, fewer than 10% of the students made grades of D or F. This is not unusual since students must pass most of these courses in order to qualify for admission to the program. The interesting point of this table is the relatively high percentage of "A" and "B" students who failed the state board exam. The Biology 151-152-153 series seems to be the most consistent of all in that the highest percentage of top students passed state boards. The highest percentage of failures for "A" and "B" students was in Abnormal Psychology, where 12.5% of the "A" students and 38.89% of the "B" students failed state boards. Trends such as this are an indication that classroom grading scales are not in line with that of the standardized test.

Table 2. Distribution of Grades for Prerequisite Courses

GROWTH AND DEVELOPMENT I

		A	B	C	D	F	Total
Fail:	Number	1	7	14	2	1	25
	%	3.45%	18.92%	50.00%	100.00%	100.00%	25.77%
Pass:	Number	28	30	14	0	0	72
	%	96.55%	81.08%	50.00%	0.00%	0.00%	74.23%
Total		29	37	28	2	1	97
		29.90%	38.14%	28.87%	2.06%	1.03%	100.00%

GROWTH AND DEVELOPMENT II

		A	B	C	D	Total
Fail	Number	1	12	9	4	26
	%	3.23%	27.27%	42.86%	100.00%	26.00%
Pass	Number	30	32	12	0	74
	%	96.77%	72.73%	57.14%	0.00%	74.00%
Total		31	44	21	4	100
		31.00%	44.00%	21.00%	4.00%	100.00%

ABNORMAL PSYCHOLOGY

		A	B	C	D	F	Total
Fail	Number	6	14	5	1	0	26
	%	12.50%	38.89%	38.46%	100.00%	0.00%	26.53%
Pass	Number	42	22	8	0	0	72
	%	87.50%	61.11%	61.54%	0.00%	0.00%	73.47%
Total		48	36	13	1	0	98
		48.98%	36.73%	13.27%	1.02%	0.00%	100.00%

Table 2. Distribution of Grades for Prerequisite Courses (Continued)

BIOLOGY 151

	A	B	C	D	F	Total
Fail Number	0	5	16	3	0	24
%	0.00%	11.90%	47.06%	60.00%	0.00%	24.74%
Pass Number	16	37	18	2	0	73
%	100.00%	88.10%	52.94%	40.00%	0.00%	75.26%
Total	16	42	34	5	0	97
	16.49%	43.30%	35.05%	5.15%	0.00%	100.00%

BIOLOGY 152

	A	B	C	D	Total
Fail Number	1	7	15	1	24
%	4.35%	20.00%	42.86%	25.00%	24.74%
Pass Number	22	28	20	3	73
%	95.65%	80.00%	57.14%	75.00%	75.26%
Total	23	35	35	4	97
	23.71%	36.08%	36.08%	4.12%	100.00%

BIOLOGY 153

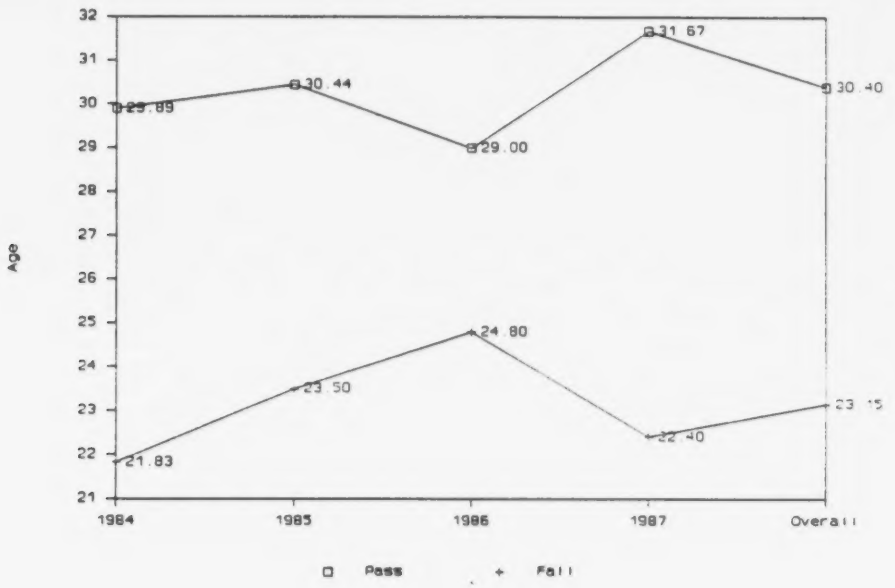
	A	B	C	D	Total
Fail Number	2	1	14	7	24
%	11.76%	3.85%	32.56%	77.78%	25.26%
Pass Number	15	25	29	2	71
%	88.24%	96.15%	67.44%	22.22%	74.74
Total	17	26	43	9	95
	17.89%	27.37%	45.26%	9.47%	100.00%

The average age of students who pass state boards is higher than for those who fail. As Table 3 indicates and Figure 2 illustrates, since 1984 the difference between average age of students who passed and those who failed has ranged from 4.2 years in 1986 to 9.27 in 1987, with those passing having the higher age every year.

Table 3. Comparison of Scores of Students Nursing Program Courses, CGP, GPA and Age on First NCLEX-RN Attempt

		1984	1985	1986	1987	Overall
Number	Pass	19.00	25.00	13.00	21.00	78.00
	Fail	6.00	10.00	5.00	5.00	26.00
Nursing Basics I - NLN	Pass	52.37	47.60	29.54	42.05	44.26
	Fail	31.17	7.30	13.60	3.20	13.23
Nursing Basics II - NLN	Pass	53.47	54.16	26.62	48.14	47.78
	Fail	14.17	13.00	12.40	3.80	11.38
Maternal Child NLN	Pass	62.05	47.84	37.38	34.62	46.00
	Fail	11.17	11.10	12.80	5.40	10.46
Comprehensive NLN	Pass	62.19	57.96	51.00	50.76	55.64
	Fail	15.17	15.56	12.80	18.60	15.52
Psychiatric NLN	Pass	*	*	*	55.68	55.68
	Fail	*	*	*	37.40	37.40
Maternity Child Nursing NLN	Pass	*	*	*	39.26	39.26
	Fail	*	*	*	4.80	4.80
Nursing Children NLN	Pass	*	*	*	23.89	23.89
	Fail	*	*	*	1.75	1.75
1st Year GPA	Pass	3.26	3.16	3.26	2.96	3.15
	Fail	2.36	2.61	2.47	2.34	2.47
Curriculum GPA	Pass	3.37	3.31	3.38	2.87	3.22
	Fail	2.59	2.92	2.70	2.50	2.72
Overall GPA	Pass	3.30	3.22	3.42	2.94	3.18
	Fail	2.46	2.61	2.51	2.47	2.53
CGP Reading	Pass	77.69	64.25	60.57	62.06	66.44
	Fail	45.25	64.80	54.00	51.67	54.86
CGP Math	Pass	51.31	49.81	62.57	46.67	51.02
	Fail	61.50	65.00	75.50	64.00	65.29
Age	Pass	29.89	30.44	29.00	31.67	30.40
	Fail	21.83	23.50	24.80	22.40	23.15

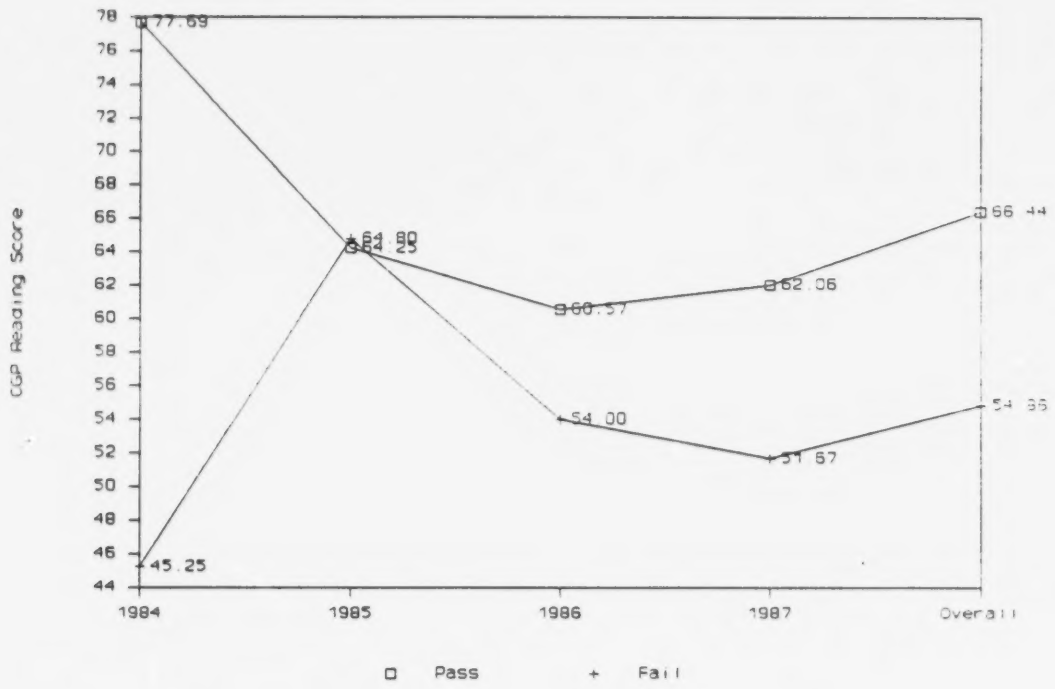
Figure 2. Average Age of Students Who Took NCLEX-RN Exam from 1984 to 1987



CGP scores have traditionally been used to predict success in college programs and are currently used as a screening device for entrance into the nursing program. In order for this practice to be effective, it is important that they be accurate predictors of success. As Figures 3 and 4 illustrate, reading seems to be a fairly accurate predictor in that students who do well on the reading portion of the CGP test also pass the NCLEX-RN exam on first try. In only one year (1985) since 1984 have scores for those who passed the test dipped below those who did not pass.

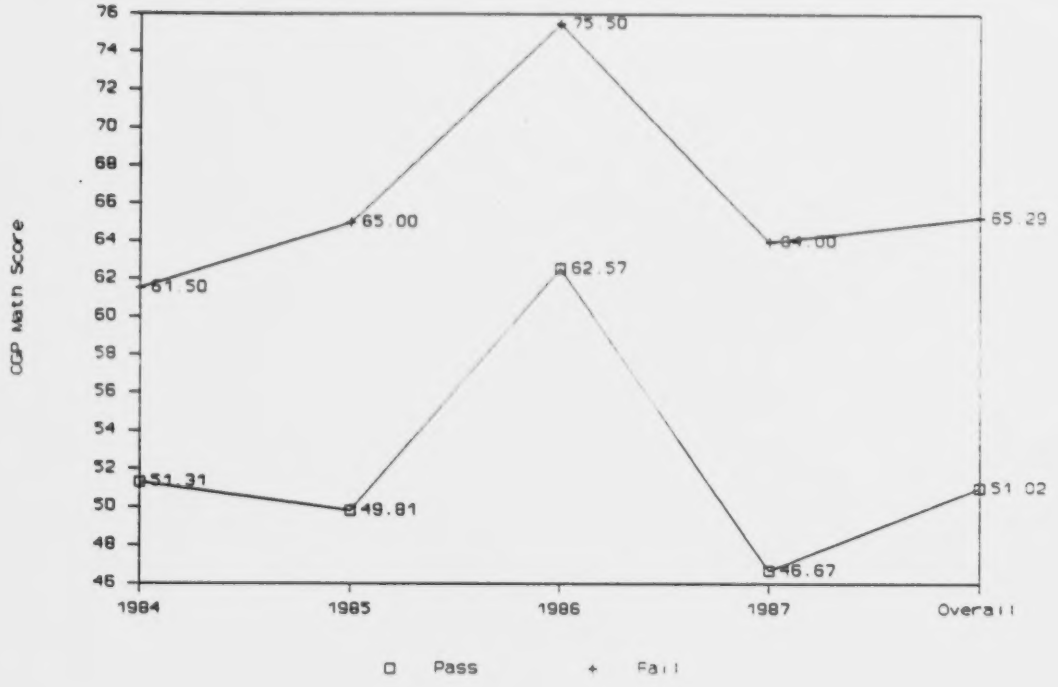
CGP Math scores are a different story. As Figure 4 illustrates, math scores on the CGP have consistently been lower for students who pass NCLEX-RN on first attempt than for those who fail. Not only does this indicate that the CGP math test is not a good predictor of success in the nursing program, it also shows that this test is negatively correlated with such success, a point which will be discussed later in this report.

Figure 3. CGP Reading Scores



A second variable examined was whether or not graduates had ever repeated a nursing course and the proportion of those who repeated such courses who passed or failed the state licensure examination. As Table 4 illustrates, of the 104 students who graduated during the course of this study, 89 (85.58%) did not need to repeat a nursing course and 15 (14.42%) did. Of the students who repeated a nursing course, 60% failed the state licensure examination on the first try, compared to a 19.1% failure rate for those who did not need to repeat a nursing course.

Figure 4. CGP Math Scores



When these data were subjected to a chi-square test of significance a p-value of .001 was generated. This p-value means that if repeating a nursing course has no impact on passing the state licensure examination, then we would expect to find results this unusual or more unusual one time in every thousand, or one-tenth of one percent of the time. This is very strong evidence that repeating a nursing course affects passing or failing the state board exam, with those who repeat a course being far more likely to fail the exam than those who do not repeat a course.

Table 4. 2 X 2 Contingency of NCLEX-RN and Repeat of Nursing Course

			REPEAT OF A NURSING COURSE: No	Yes	
NCLEX|RN	Fail	Number	17	9	26
		%	19.10%	60.00%	25.00%
	Pass	Number	72	6	78
		%	80.90%	40.00%	75.00%
	Total		89	15	104
			85.58%	14.42%	

chi-square p=.001

An additional variable which had a strong influence on pass rates is experience as a licensed practical nurse prior to enrollment in the nursing program. As Table 5 illustrates, 79.61% of the students who graduated during this study had no previous practical nursing experience and 20.39% did. Of those who had previous practical nursing experience, none failed the licensure exam on first try. This compares to a 31.71% failure rate for those who did not have previous practical nursing experience.

Table 5. 2 X 2 Contingency Table of Licensed Practical Nurses and NCLEX-RN

			LICENSED PRACTICAL NURSES: No	Yes	
NCLEX|RN	Fail	Number	26	0	26
		%	31.71%	0.00%	25.24%
	Pass	Number	56	21	77
		%	68.29%	100.00%	74.76%
	Total		82	21	103
			79.61%	20.39%	

chi-square p=.003

These data were also subjected to a chi-square test of significance, and a p-value of .003 was generated. This means that results this unusual or more unusual than this would be expected three times out of a thousand (three tenths of one percent of the time) if previous practical nursing experience has no relationship to passing or failing the state board exam. Again, this is strong evidence that having experience as a practical nurse prior to enrolling in the nursing can enhance a student's chance of passing the state board exam on the first try.

Correlation Coefficients

Table 6 contains correlation coefficients between each variable in the model and every other variable in the model. It should be noted that repeating a nursing course is negatively correlated with every variable except CGP MATH and LPN, meaning that those students who repeated nursing courses had higher CGP Math scores than those who didn't and that repeaters were also more likely to be LPN's.

Table 6. Correlation Coefficients

	NLN	GPA	Biology	Grow. & Dev.	Nursing	Repeat	CGP Rdg	CGP Math	LPN	Age
Board	.43	.26	.32	.43	.41	-.41	.12	-.20	.23	.31
Comp NLN	1.00	.47	.66	.64	.71	-.31	.44	-.10	.20	.10
1st Year GPA	.47	1.00	.48	.60	.25	-.27	.28	.01	-.10	.21
Biology	.66	.48	1.00	.75	.42	-.35	.31	-.07	-.05	.22
Grow. & Dev.	.64	.60	.75	1.00	.45	-.34	.29	-.22	.11	.24
Nursing	.71	.25	.42	.45	1.00	-.20	.36	-.13	.55	.25
Repeat	-.31	-.27	-.35	-.34	-.20	1.00	-.11	.07	.02	-.01
CGP Reading	.44	.28	.31	.29	.36	-.11	1.00	.47	-.05	-.08
CGP Math	-.10	.01	-.07	-.22	-.13	.07	.47	1.00	-.24	-.45
LPN	.20	-.10	-.05	.11	.55	.02	-.05	-.24	1.00	.25
Age	.10	.21	.22	.24	.25	-.01	-.08	-.45	.25	1.00

CGP Math scores are also negatively correlated with passing the state board exam, scores on comprehensive NLN test (a predictor test for state board exam), biology, growth and development and nursing grades, and age. This means first of all that as scores on the CGP math test go up, scores on the Comprehensive NLN, biology, growth and development and nursing courses go down. It also means that older students do not do as well on the CGP math test as the younger ones, and that as CGP math scores increase, the likelihood of passing the state board exam on first try decrease.

This a particularly important finding since the CGP is used to predict success in college programs. It seems that, in this case, the CGP math test is not as good a predictor as college faculty and administrators had believed.

CGP Reading seems to do a better job of predicting success in the nursing program since it is positively correlated with all scores except repeating a nursing course, LPN and age. This means that as CGP reading scores increase, so do the other scores in the matrix except Repeat, LPN and Age. Older students and LPN's do not do as well as younger students or non-LPN's and those who repeated a nursing course do not do as well as those who did not repeat. These are exactly the results one would expect since older students and LPN's would have been out of school for a period of time, and those who repeat a nursing course would not have grades on a par with those who did not have to repeat such courses.

Path Analysis

Results discussed above were further analyzed when the data were examined for the purpose of finding the variables which could predict success on the state board exam. For the purpose of such a path analysis, average performance on the Biology, Growth and Development and Nursing series of courses were used instead of using each course individually. In addition, high school ability variables were eliminated from the model.

Of all variables included in this analysis, only Repeat of a nursing course had a significant direct effect ($p = .017$), with a coefficient of -0.317. This finding corroborates those discussed above, meaning that student who repeats a nursing course is less likely to pass state boards than those who do not repeat such courses.

Two variables, CGP Math and CGP Reading had significant indirect effects (coefficients = -.004 and .005 respectively), meaning that they do affect state board scores but only through their influence on repeat of a nursing course. Again, CGP reading had a positive indirect effect (as CGP reading score goes up, so does the likelihood that a student will pass the state board exam) and CGP math had a negative indirect effect.

It is important to note that this type of analysis generally requires much larger sample sizes than we were working with. It is quite likely that the effects discussed above have been underestimated and may indeed be greater than the analysis indicated. It is also possible that there are other variables which are important factors in determining a student's board score that didn't show significance in the model because of the small sample.

Qualitative Information

Employer Survey

In the fall of 1987 service area doctors, dentists, hospitals and nursing homes were surveyed to determine their degree of satisfaction with PHCC graduates. A complete survey as well as a survey results are included in this report as Appendices A and B respectively. When asked to rate nursing graduates on a scale from 1 (Poor) to 10 (Excellent), respondents' ratings were averaged and are included here as Table 7.

Table 7. Employer Ratings of PHCC Nursing Graduates

Cooperation with Supervisors	8.47
Attitude Toward Work	8.35
Cooperation with Fellow Workers	8.29
Overall Level of Satisfaction with Grads	7.94
Logic Skills (Common Sense)	7.82
Quantity of Work	7.75
Quality of Work	7.65
Speaking Skills	7.60
Math Skills	7.57
Writing Skills	7.50
Research Skills (Basic data gathering and interpretation)	7.40
Leadership Skills	7.25
Problem Solving Skills	6.82

These results indicate that persons who employee PHCC nursing graduates are more satisfied with their attitudes about their work than they are with specific skills which are needed to do the job. An interesting result of this survey is the fact that employers rated their overall level of satisfaction higher than any of the aggregate skills which were rated, indicating that while specific skills may be somewhat weak, the overall skill level is more satisfactory. It should also be noted that all ratings are above the mid-point of the scale, and all but one are above 7.00. Even considering the fact that people tend to give high ratings on such scales, these results seem to indicate a generally high level of satisfaction with PHCC nursing grads on the part of persons who employ them.

These results were supported when respondents were asked to state what they considered to be particular strengths and weaknesses of PHCC nursing graduates. There were many responses indicating that the nurses have a good attitude about their work, are enthusiastic, cooperative, adapt easily and are interested in their field. One respondent stated that PHCC nursing graduates "are well-prepared for medical/surgical nursing in a small hospital. The graduates that have worked at our hospital learn quickly and seem to enjoy their work."

Negative comments dealt with weaknesses in clinical skills such as dealing with patients, patient care skills, operating room procedures, and that they lack qualifications in technical skills.

When asked what changes the nursing faculty could make to insure that the RN program provides the best possible training for its students, every person who responded to this question indicated that more hands-on, or clinical, experience was needed. One person suggested that a weekend clinical needs to be added so that students receive a full 8-hour practicum. Again, this is a reflection of the ratings stated above which specific clinical skills such as research and use of logic were rated below math, speaking and writing.

Respondents indicated that they think students need English, math, psychology and speech as general education requirements more than they need economics. This is validated by comments which indicate that verbal and written skills need to be improved as do spelling and writing. Several persons indicated that the college needs higher standards, improved patient contact skills and additional science training for RN students. An additional area which should be considered is leadership skills. Physicians mentioned this as a weak area, indicating that PHCC students need to develop skills needed to be leaders in their work environment.

Conclusions and Recommendations

PHCC's pass rate on the state board exam has steadily risen since 1985 when the rate was 65%. Although 1988 graduates are not included in the data analyzed for this report, the school has been informed that our most recent group of students who took the test achieved a 92% pass rate for first time examinees.

It is evident from the data analysis cited above that students who repeat a nursing course are much less likely to pass the state board examination on the first try than are those who do not repeat nursing courses. Faculty may want to consider development of a policy which limits the number of times a student may repeat a course as well as the number of courses which may be repeated before the student is asked to leave the program.

An additional conclusion which seems to be unavoidable in light of the previous discussion is that the CGP test, particularly the math section, may not be the valid predictor of success in college that faculty and administrators had thought that it was. Nursing faculty may wish to consider using a test which is a more valid predictor of success in their program than the CGP test.

One of the broad changes which was made immediately before the decline in state board pass rates was the elimination of a summer session between the first and second years of the nursing program. A strategy to assist students who are having difficulty in the first year of the program may be to conduct an optional summer program designed to review first-year curriculum and remediate weaknesses discovered during the first year of the program. This could be handled similarly to the state board review course in that it would not be required and no new material would be taught during the course.

In a 1987 letter to Ms. Nancy K. Durrett, contained in this report as Appendix C, nursing faculty outlined specific steps which they planned to take in order to improve the amount of learning on the part of nursing students and hopefully to increase the percentage of students who pass state boards on first try. Among these recommendations were:

1. Toughen curriculum standards
2. Re-examine policy on readmission of academic failures to determine whether such policy needed to be revised.
3. Establish tutoring programs to assist at-risk students.
4. Tighten admission requirements.

Nursing faculty have reported that since data was collected for this report, they have instituted some of the recommendations included above and in Appendix C, and that they are beginning to see results in the form of students who are better prepared for nursing course work. It is too early to determine whether such changes will result in improvements in state board passage rates, but they are hopeful that the improvement experienced with 1988's graduates will continue.

An additional activity which may be of particular benefit to nursing faculty is the establishment of a student information data base which nursing faculty and staff may update easily and quickly and which they can access each semester for the purpose of tracking students. Such a data base need not be a duplication of information which is already collected, but and enhancement of such information. Such a system could be used to track nursing students from the time they enroll until they graduate and would be particularly helpful for identifying high-risk students early enough to provide counseling or tutoring before they are in danger of failing completely.

Finally, nursing faculty should be commended for the changes they have made which have resulted in major increases in the pass rates of first time state board examinees. Their dedication to excellence in teaching and administering their program have paid off and will continue to pay dividends for the program.

Appendices

Appendix A

Survey of Service Area Doctors, Hospitals And Health Services Personnel

PATRICK HENRY COMMUNITY COLLEGE

SURVEY OF SERVICE AREA DOCTORS, HOSPITALS AND HEALTH SERVICES PERSONNEL

The Nursing Faculty at Patrick Henry Community College (PHCC) appreciate your taking a few minutes to provide the following information, which will be used in planning new courses or programs and evaluating current programs. All information which you provide is considered confidential and no attempt will be made to identify respondents by their responses.

1. In your opinion, is there a need for a Licensed Practical Nurse (LPN) program in the Martinsville/Henry County area?

   _____No _____Yes

2. Do you hire LPN's at your place of business?

   _____No _____Yes

   Approximately how many do you currently employ? _____

3. Do you anticipate hiring additional LPN's in the next five years, either to replace currently employed LPN's who leave or to fill newly created positions?

   _____No _____Yes

   If yes, approximately how many LPN's do you anticipate needing during the next five years? _____

4. Please indicate which general education requirements are needed to adequately prepare LPN's by placing an X in the appropriate blank beside each item..

	Needed	Not Needed
English	_____	_____
Math	_____	_____
Psychology	_____	_____
Economics	_____	_____
Speech	_____	_____

Please list other general education requirements which you feel should be included in an LPN program.

_____

_____

_____

Survey prepared by Office of Institutional Research, Planning and Evaluation - October, 1987

5. In your opinion, which of the following health-related programs are needed in the PHCC service area?

	Needed	Not Needed
Dental Assistant Program	____	____
Dental Hygienist Program	____	____
Medical Secretary/Office Assistant	____	____
Physical Therapy Aide	____	____
Respiratory Therapist	____	____
Medical Records Specialist	____	____
Laboratory Medical Technician	____	____
Respiratory Technician	____	____
X-Ray Technician	____	____
Nursing Assistant	____	____
Geriatric Assistant	____	____

6. Are there any skills which LPN's or RN's at your office need for which PHCC could provide training? In other words, are there specific retraining or updating of skills needs for your employees?

____No ____Yes

What courses or types of training would you like to see offered at PHCC to meet retraining or skills updating needs or <u>any</u> of your employees? For instance, do you feel that there is a need for a refresher course for nurses who are reentering the workforce after a lengthy absence? Please list all such courses in the space below.

_____

_____

_____

_____

7. Has your office/institution employed nurses who are graduates of PHCC's RN program during the past three years?

_____No _____Yes

If yes, please rate your degree of satisfaction with PHCC's graduates in each of the following areas, using a scale from 1 (Poor) to 10 (Excellent) by circling the appropriate number.

		POOR									EXCELLENT	
A.	Problem Solving Skills	1	2	3	4	5	6	7	8	9	10	N/A
B.	Quality of work	1	2	3	4	5	6	7	8	9	10	N/A
C.	Quantity of work	1	2	3	4	5	6	7	8	9	10	N/A
D.	Attitude toward work	1	2	3	4	5	6	7	8	9	10	N/A
E.	Cooperation with fellow workers	1	2	3	4	5	6	7	8	9	10	N/A
F.	Cooperation with supervisors	1	2	3	4	5	6	7	8	9	10	N/A
G.	Math Skills	1	2	3	4	5	6	7	8	9	10	N/A
H.	Speaking Skills	1	2	3	4	5	6	7	8	9	10	N/A
I.	Writing Skills	1	2	3	4	5	6	7	8	9	10	N/A
J.	Research Skills (Basic data gathering and interpretation)	1	2	3	4	5	6	7	8	9	10	N/A
K.	Logic Skills (Common Sense)	1	2	3	4	5	6	7	8	9	10	N/A
L.	Leadership Skills	1	2	3	4	5	6	7	8	9	10	N/A
N.	Overall level of satisfaction with grads	1	2	3	4	5	6	7	8	9	10	N/A

8. Have you or other employees of your company pinpointed specific weaknesses in the training or degree of preparedness of PHCC nursing graduates?

_____No _____Yes If yes, what are they?_____

_____

_____

_____

9. Have you or other employees at your office pinpointed particular strengths of PHCC nursing graduates?

_____No _____Yes If yes, what are they? _____

_____

_____

_____

_____

10. What changes could the nursing faculty make to insure that the R.N. program provides the best possible training for its students? _____

_____

_____

_____

_____

11. Does the college supply adequate information about courses, programs and services available?

_____No _____Yes

What additional information would be helpful to you? _____

_____

_____

_____

_____

_____

Please use the bottom of this page and the attached sheet to make any further comments concerning any of PHCC's programs with which you are familiar or the possibility of establishing an LPN program at the college.

Appendix B

Results of Survey of Service Area Doctors, Hospitals And Health Services Personnel

PATRICK HENRY COMMUNITY COLLEGE

SURVEY OF SERVICE AREA DOCTORS, HOSPITALS AND HEALTH SERVICES PERSONNEL

The Nursing Faculty at Patrick Henry Community College (PHCC) appreciate your taking a few minutes to provide the following information, which will be used in planning new courses or programs and evaluating current programs. All information which you provide is considered confidential and no attempt will be made to identify respondents by their responses.

1. In your opinion, is there a need for a Licensed Practical Nurse (LPN) program in the Martinsville/Henry County area?

   0 No 17 Yes

2. Do you hire LPN's at your place of business?

   4 No 13 Yes

   Approximately how many do you currently employ? 36

3. Do you anticipate hiring additional LPN's in the next five years, either to replace currently employed LPN's who leave or to fill newly created positions?

   5 No 11 Yes

   If yes, approximately how many LPN's do you anticipate needing during the next five years? 40

   a. I would like to replace all nursing assistants with LPN's if available

4. Please indicate which general education requirements are needed to adequately prepare LPN's by placing an X in the appropriate blank beside each item.

	Needed	Not Needed
English	18	1
Math	17	2
Psychology	13	5
Economics	7	10
Speech	18	0

Please list other general education requirements which you feel should be included in an LPN program.

a. I think the above courses would all be helpful
b. Spelling and writing
c. Science
d. More psychology courses which would improve patient contact skills
e. General Science course, anatomy, medical terminology
f. Biology, Chemistry
g. Higher standards for admission to LPN program
h. Verbal and written communication skills

5. In your opinion, which of the following health-related programs are needed in the PHCC service area?

	Needed	Not Needed
Dental Assistant Program	16	14
Dental Hygienist Program	23	5
Medical Secretary/Office Assistant	13	0
Physical Therapy Aide	4	1
Respiratory Therapist	6	2
Medical Records Specialist	11	3
Laboratory Medical Technician	9	2
Respiratory Technician	4	2
X-Ray Technician	9	1
Nursing Assistant	10	2
Geriatric Assistant	7	3

6. Are there any skills which LPN's or RN's at your office need for which PHCC could provide training? In other words, are there specific retraining or updating of skills needs for your employees?

10 No 12 Yes

What courses, or types of training would you like to see offered at PHCC to meet retraining or skills updating needs for <u>any</u> of your employees? For instance, do you feel that there is a need for a refresher course for nurses who are reentering the workforce after a lengthy absence? Please list all such courses in the space below.

a. A refresher course is definitely needed for nurses who have not worked for a long time. It is very difficult to do this in-house for a small hospital, and I believe some nurses would return if a refresher course were available.

b. Medical Steno

c. Refresher Course
Updating classes on medications

d. Radiology-x-ray technician refresher course

e. Filing of Insurance Forms

f. Refresher Course Biology and Drugs

g. Refresher Course

h. Oncology course, course in geriatric care, updates on pharmacology

6. (continued)

i. I.V. Therapy

j. Physical Assessment

k. Updates of current technical procedures

l. Physical Assessment Course

m. CPR course

n. RN management skills

o. Updating of technical skills

7. Does your office/institution employ RN's?

12 No 10 Yes

How many RN's are employed at your office/institution? 1098

How many are PHCC graduates? 157

8. Please rate your degree of satisfaction with PHCC's graduates in each of the following areas, using a scale from 1 (Poor) to 10 (Excellent) by circling the appropriate number.

		Average
A.	Problem Solving Skills	6.82
B.	Quality of work	7.65
C.	Quantity of work	7.75
D.	Attitude toward work	8.35
E.	Cooperation with fellow workers	8.29
F.	Cooperation with supervisors	8.47
G.	Math Skills	7.37
H.	Speaking Skills	7.60
I.	Writing Skills	7.50
J.	Research Skills (Basic data gathering and interpretation)	7.40
K.	Logic Skills (Common Sense)	7.82
L.	Leadership Skills	7.25
M.	Overall level of satisfaction of grads	7.94

9. Have you or other employees of your company pinpointed specific weaknesses in the training or degree of preparedness of PHCC nursing graduates?

14 No 7 Yes

If yes, what are they?

a. No major weaknesses
b. Dealing with patient - patient care skills - they need more exposure to operating room
c. Screening for applicants - need to know more nursing such as doses and patient's care - nurses aides 26 years ago had the same skills as LPN's now
d. These have previously been stated during twice yearly meetings at PHCC
e. Lack qualifications in technical skills
f. Not enough experience in the workplace
g. Lack of hands on experience with larger numbers of patients - need more leadership skills

10. Have you or other employees at your office pinpointed particular strengths of PHCC nursing graduates?

10 No 10 Yes

If yes, what are they?

a. They are well prepared for medical/surgical nursing in a small hospital. The graduates that have worked at our hospital learn quickly and seem to enjoy their work.
b. They are interested in their field
c. Cheerful work attitude
d. Knowledge of nursing skills
e. High degree of self confidence for amount of education they have received
f. Adapt easily - flexible
g. Very enthusiastic, cooperative

11. What changes could the nursing faculty make to insure that the R.N. program provides the best possible training for its students?

a. I would like to commend the instructors, I believe Patrick Henry has an excellent program
b. Don't know get good applicants
c. Working with patients more
d. Improve patient contact skills
e. Need B.S. program in nursing - associate degree not adequate for R.N. - Need B.S. degree for those who don't want to leave area
f. Teach how to take history, upgrade skills, teach how to do urinalysis, they should be able to use modern equipment, LPN level graduates from PHCC presently no different then graduates of Beautician Program at Technical School
g. More surgical experience
h. Poor advising - make sure that courses will transfer
i. There are two areas - role of the professional nurse - What are they accountable for - Hands on clinical experience should be increased
j. Lack of floor experience - need more on hands experience
k. More emphasis on the total patient as opposed to the skilled service being provided - whole picture - what other needs might be met
l. Broaden clinical experience - need experience with children and adolescents - acutely ill psychiatric patients

BEST COPY AVAILABLE

11. (continued)

m. More clinical experience
n. Need evening and weekend clinicals where students get full 8 hours practicum
o. More emphasis on technical skills
p. More hands on experience - daily problem solving
q. Improve leadership skills
r. Increased introduction to Home Health Care

12. Please indicate the type of office/institution with which you are associated.

Dentist	26	Nursing/Convalescent Home	5
M.D. (Private Practice)	14	Clinic	0
Hospital	6	Other (Specify)	3

13. Does the college supply adequate information about courses, programs and services available?

0 No 21 Yes

Appendix C

Letter to Nancy K. Durrett
Nursing Consultant
Dept. of Health Regulatory Boards
Commonwealth of Virginia

Occupational/Technical Division
PATRICK HENRY COMMUNITY COLLEGE
P.O. Drawer 5311, Martinsville, Virginia 24115-5311, Phone: (703) 638-8777

April 13, 1987

Ms. Nancy K. Durrett
Nursing Consultant
Commonwealth of Virginia
Department of Health Regulatory Boards
1601 Rolling Hills Drive
Richmond, VA 23229-5005

Dear Ms. Durrett:

As requested, I am submitting the enclosed report regarding the success/failure of PHCC's graduates on the NCLEX licensing exam.

The nursing faculty and administration of Patrick Henry Community College view this problem as a serious one requiring short-term and long-term solutions. We have done a study to discover the reasons for the failure of our graduates on NCLEX. The first item scrutinized was the correlation between pass/failure rate on the NCLEX exam and factors which the nursing faculty identified as possible contributors to the unsuccessful passing rate. After identifying factors that were highly correlated, we performed other statistical significance tests to determine which factors could predict pass/failure rate. The results of these tests were used to develop strategies to improve graduates' performance on the NCLEX exam. As evidenced by some of the strategies listed, we are committed to a nursing program whose graduates have a reasonable expectation to pass the NCLEX licensing examination.

Please contact me if there is additional information or clarification needed. Thank you for your assistance in this matter.

Sincerely,

Janice A. Cullen

Janice A. Cullen, RN, MSN
Nursing Program Head

rge
encl.

30

FACTORS CONTRIBUTING TO FAILURES ON NCLEX

Patrick Henry Community College

I. Field of Applicants

There is a decreasing number of applicants. At the same time, academic quality of applicants is decreasing. Most applicants are now in the upper 50% of their high school graduating class (formerly 25%).

II. Curriculum Standards

A study done on graduates of classes from 1984-87 indicates that there is a statistically significant difference between first year GPA, curriculum GPA at graduation, and success rate on NCLEX. An analysis of data (see Addendum A) indicates that the mean GPA of a student failing the NCLEX exam is about C+. This indicates a need to toughen curriculum standards so that a student graduating with a C- average has a reasonable chance of passing the NCLEX exam.

III. Academic Failures

Students who fail a nursing course and then come back to repeat the course and continue on to graduation have a 100% failure rate on NCLEX exams. (See Addendum B)

IV. Admission Requirements

Applicants barely meet admission requirements at present. Prior to 1982, applicants to the program far exceeded the requirements.

V. NLN Test Results

NLN test results are highly correlated with pass/failure rates on NCLEX exam. (See Addendum C)

STRATEGIES

I. Toughen curriculum standards

A. Require increased student academic performance
   1. Allow for application of concepts
   2. Write better tests that are more discriminating (PHCC is purchasing software which allows for item analysis)
   3 Investigate innovative learning methods

*B. Hire consultant to assist with program evaluation

C. Require minimum performance on selected NLN tests. Establish remedial course between semesters/quarters to allow students the opportunity to raise NLN scores.

II. Re-examine policy on readmission of academic failures to determine the feasibility of

A. Instituting additional requirements for readmission
B. Establishing new policy of no readmission for academic failures

III. Establish tutoring programs

A. Institute peer tutoring program
B. Have nursing faculty set aside portion of office hours as tutoring sessions
C. Organize test-taking seminar - stress management, study skills, test taking skills
*D. Establish summer tutoring program
*E. Utilize more computer-assisted learning modules

IV. Tighten up admission requirements

A. Require applicants to meet all criteria
B. Raise admission criteria if failure rate is unacceptable after second year of implementation of new standards.

*A grant will be written Spring 87 to request funds for these proposals.

Patrick Henry Community College

Addendum A

t-Test Comparing Passing and Failure Rates on NCLEX Exam

GPA's	Mean Fail	Mean Pass	t value	P
first year GPA	2.508	3.218	-5.773	0.0001
curriculum GPA at graduation	2.775	3.348	-5.568	0.0001

Patrick Henry Community College

Addendum B

Chi-Square Test Comparing Passing and Failure Rates on NCLEX Exam

Academic Failure of Nursing Courses	Fail %	Pass %	P
Repeat of Nursing Courses	100.00	0.00	
Non-repeat of Nursing Courses	22.97	77.03	0.0007

Patrick Henry Community College

Addendum C

t-Test Concerning Passing and Failure Rates on NCLEX Exam

Type of NLN Test	Fail Mean	Pass Mean	t-Value	p-value
Maternal Child NLN	11.667	50.193	-6.159	.0001
Nursing Basics I	15.619	45.070	-4.191	.0001
Nursing Basics II	13.190	47.649	-5.033	.0001
Comprehensive NLN	14.750	57.537	-7.007	.0001

ERIC Clearinghouse for Junior Colleges APR 07 1989